

(12) **UK Patent Application** (19) **GB** (11) **2 278 947** (13) **A**

(43) Date of A Publication 14.12.1994

(21) Application No 9308485.3

(22) Date of Filing 23.04.1993

(71) Applicant(s)

Clares-Regisbrook Systems Limited

(Incorporated in the United Kingdom)

**Parkwood Estate, WELLS, Somerset, BA5 1UT,
United Kingdom**

(72) Inventor(s)

Michael Peter Gray

(74) Agent and/or Address for Service

Page White & Farrer

**54 Doughty Street, LONDON, WC1N 2LS,
United Kingdom**

(51) INT CL⁵

G09F 9/00

(52) UK CL (Edition M)

G5C CER

(56) Documents Cited

GB 2083673 A

(58) Field of Search

UK CL (Edition L) A4B B7B, G5C CAB CBG CBL CBM

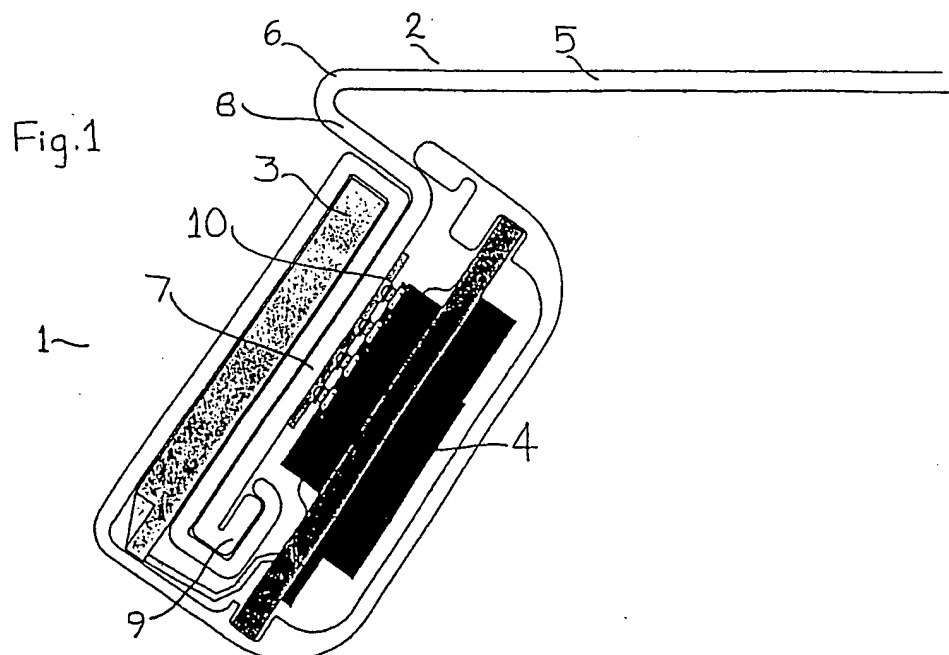
CEP CEPL CER CJA

CJX

INT CL⁵ G09F

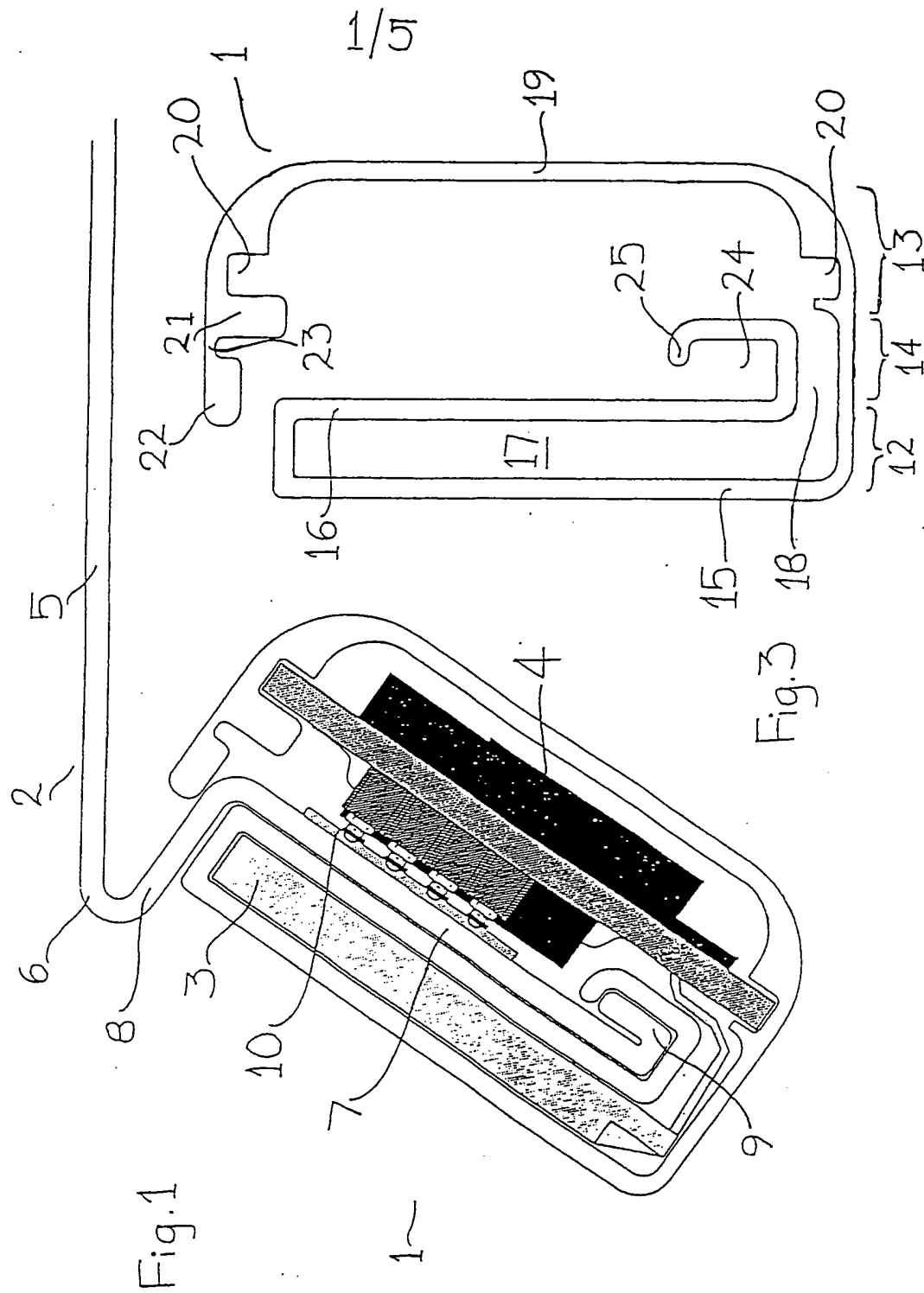
(54) **Shelf label holder**

(57) A shelf label holder 1 has a label support portion (12, Figure 3) for supporting a label 3 to be displayed in the shelf label holder 1. The holder 1 also has an engagement portion (14) adapted for removable engagement with a shelf edge 2 and a control support portion (13) for supporting control means 4 for use in controlling an electronic display label 3. The engagement portion (14) is located between the label support portion (12) and the control support portion (13) so that when the shelf label holder 1 is mounted on a shelf edge 2 the control support portion (13) is positioned behind and is at least partially obscured by the shelf edge 2. The label 3 is suitably a liquid crystal display and is associated with control circuitry 4. The holder 1 also includes an electrically insulated support member 10 provided with exposed electrical conductors (11) which supply power or data to the label 3. The support member 10 extends the length of the label holder. The holder 1 may also accommodate a printed label which may be inserted through a side opening in the label holder.



GB 2 278 947 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.



2/5

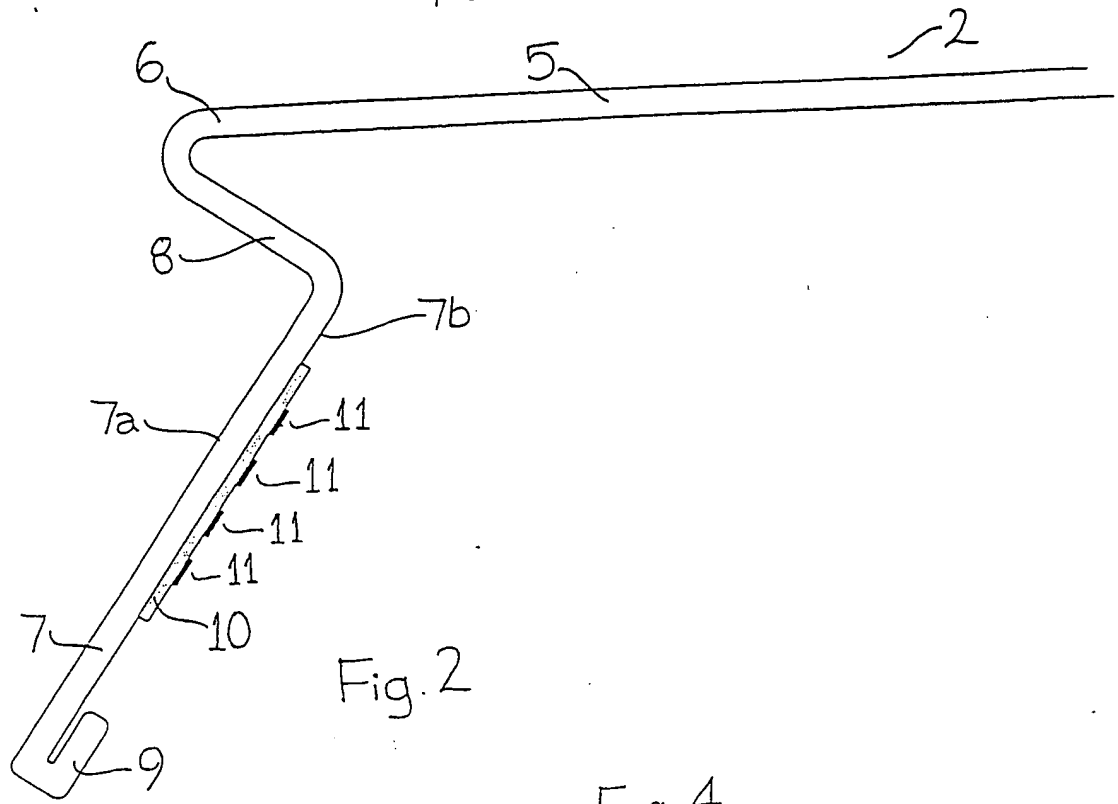


Fig. 2

Fig. 4

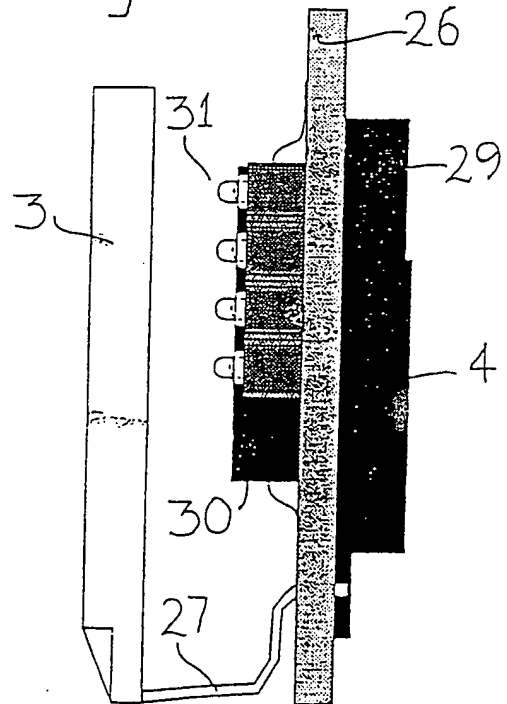
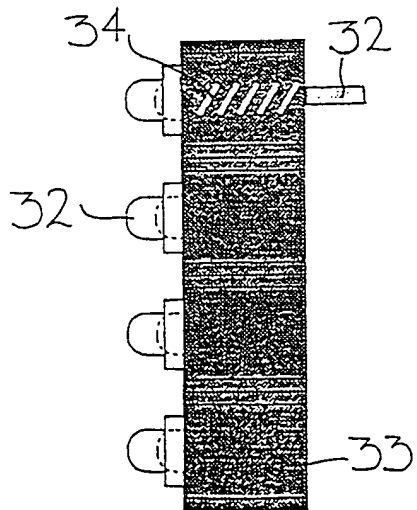


Fig. 5



3/5

Fig. 6

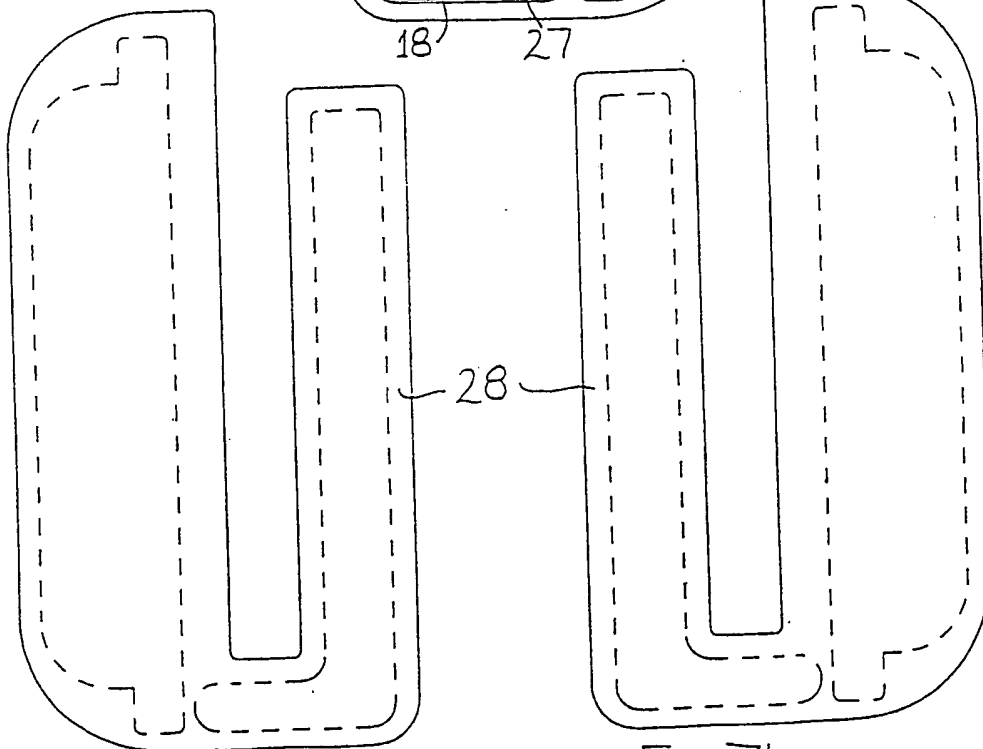
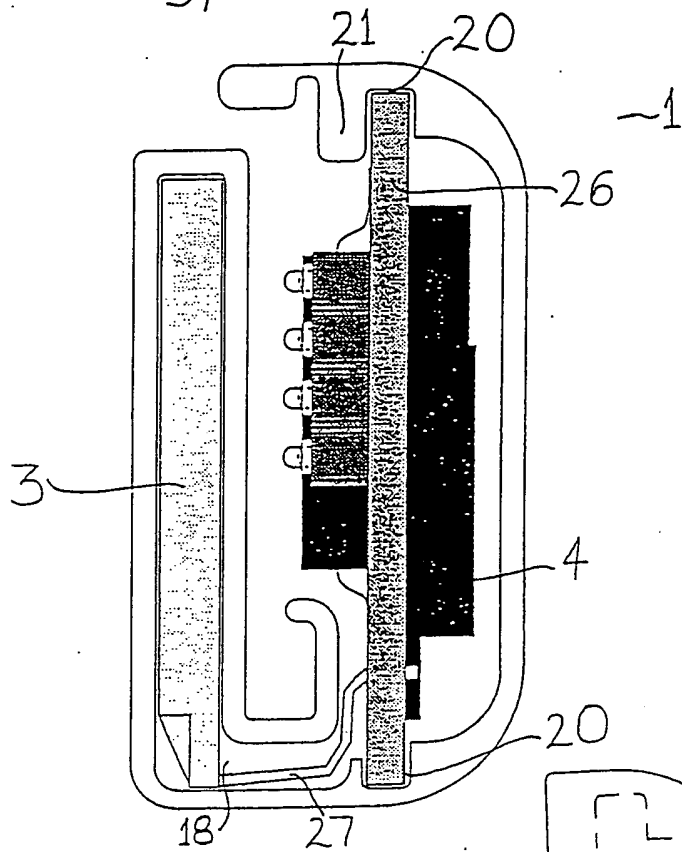
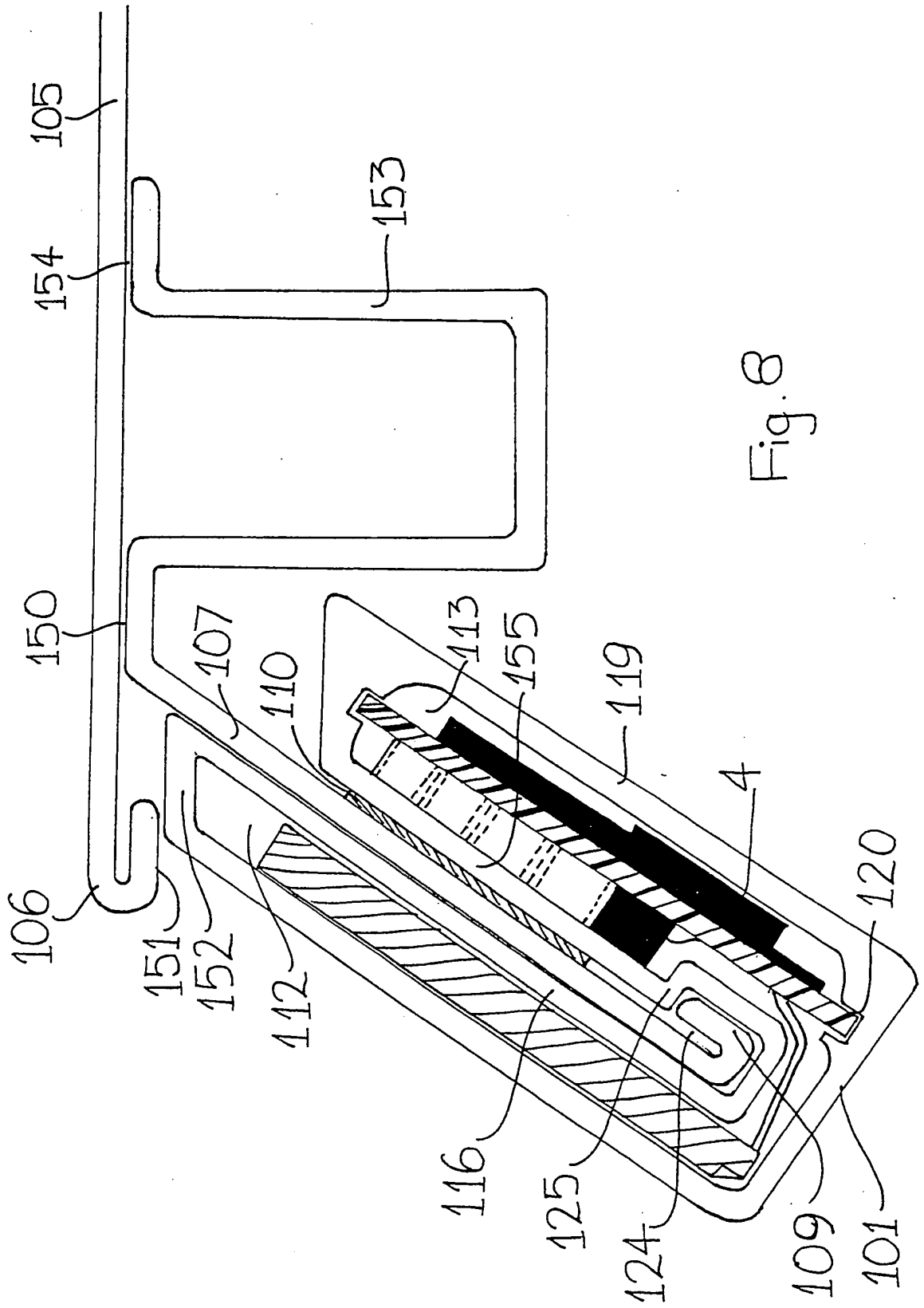
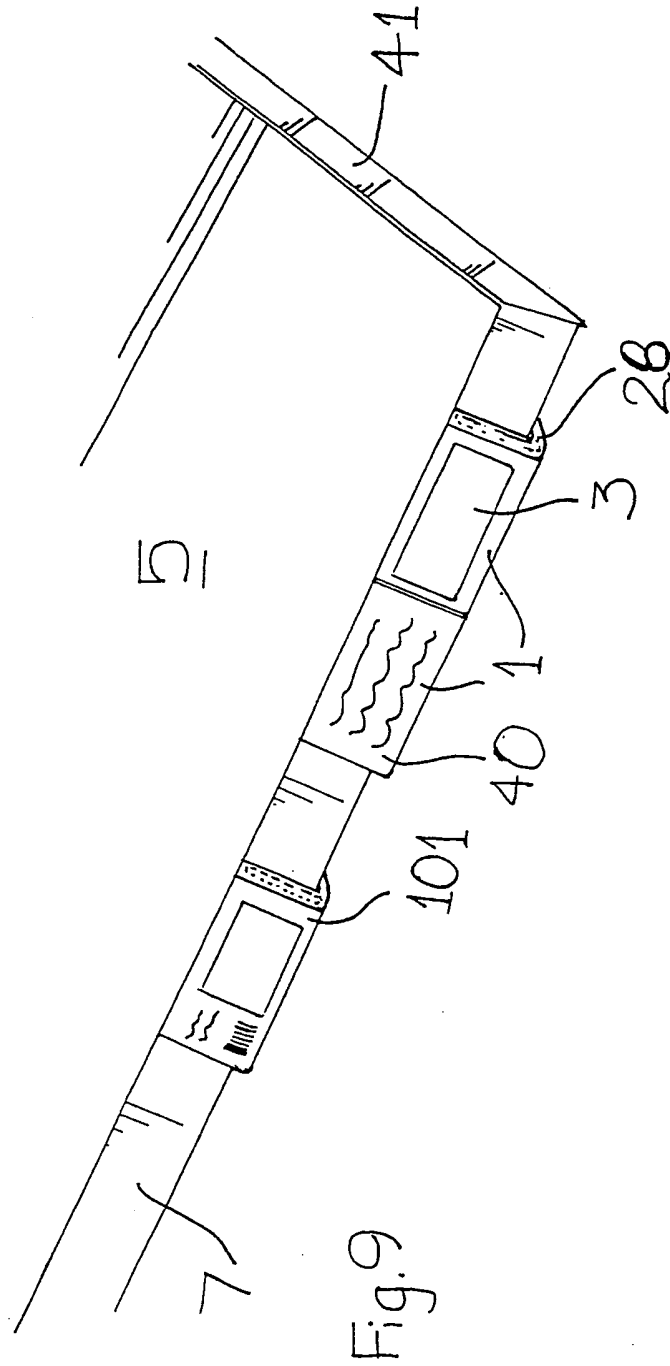


Fig. 7a

Fig. 7b





SHELF LABEL HOLDER

The present invention is directed to a shelf label holder for use, for example, in supermarkets and the like. The shelf label holder may be used to display information regarding articles on the shelves, for example the price, on the edges of the shelves. The shelf label holder is particularly but not exclusively intended for use with electronic label devices, the shelf label holder may also be used with conventional printed labels.

Conventionally, the prices of articles on the shelves in supermarkets have either been displayed on the edges of the shelves or on the articles themselves. Where labels bearing the prices of the articles are mounted on the edges of the shelves, the labels have been in the form of pre-printed paper or plastic strip labels which are mounted in holders located on the edges of the shelves. Such holders are generally in the form of extrusions having upper and lower channels which engage respective upper and lower edges of the labels.

In more recent times there has been considerable interest in the use of electronic labels on shelf edges for displaying price information. Such devices enable the information displayed to be changed very rapidly by means of a centralised computer. However, for a variety of reasons conventional label holders have not been suitable for holding electronic labels. Such reasons include the necessity of ensuring that any wiring of the electronic labels is hidden and inaccessible to the public so that the risks of suffering an electric shock are avoided. Also, the electronic labels generally need to be housed in

a protective plastic housing which inevitably adds to the bulk of the label. However, the plastic housing can enable the electronic label to be mounted on a conventional holder by means of a snap-fit or slidable coupling. If a snap-fit connection is used, there is a risk that individual label devices, spaced apart on the shelves, could become detached whether by accident or by children. If a slidable coupling is used, then the retrieval of an individual device for replacement or repair is difficult.

Furthermore, whichever way the label devices are mounted on the holder, they will inevitably be considerably more obtrusive than the conventional paper labels. This is undesirable for a number of reasons including the fact that the electronic labels are delicate and so vulnerable to damage. Such damage can occur for example when trolleys collide with the labels on the shelf edges or when a product falls onto the label from a higher shelf. This is of particular importance because electronic labels must last longer than conventional labels because of their increased cost. Additionally, such bulky labels are not aesthetically pleasing which is important to customer acceptance. Thus, a discontinuous row of bulky electronic labels along a shelf edge is undesirable.

The present invention was developed in the light of the foregoing problems and seeks to provide a shelf edge holder which is adapted for use with either conventional labels or electronic labels, which is aesthetically pleasing, which enables individual labels to be removed easily and quickly and which reduces the risks of damage to the labels when mounted on shelf edges.

The present invention provides a shelf label holder having a label support portion for supporting a label to be displayed in the shelf label holder, an engagement portion adapted for removable engagement with a shelf edge and a control support portion for supporting control means for use in controlling an electronic display label wherein the engagement portion is located between the label support portion and the control support portion whereby when the shelf label holder is mounted on a shelf edge the control support portion is positioned behind and is at least partially obscured by the shelf edge.

Thus, with the present invention only the label support portion of the shelf label holder is visible from the front of the shelf. The greatest bulk of the shelf label holder is hidden behind the shelf edge. Because only the label support portion is visible, the shelf label holder is more aesthetically pleasing and is less likely to be damaged since the control support portion is protected by the shelf edge.

Preferably, said engagement portion extends to cover a front face of said control support portion. In this way when the shelf label holder is mounted on a shelf edge the control support portion and control circuitry contained therein is fully obscured by said shelf edge. Said engagement portion may include one or more locking members adapted for engagement with a shelf edge to removably hold said shelf label holder in position on a shelf edge. Said one or more locking members may be in the form of projecting lips. Thus, the shelf label holder may be securely but removable attached to a shelf edge.

Moreover, a channel may be provided communicating said

label support portion with said control support portion for housing electrical conductors extending from said label support portion to said control support portion and said control support portion may include an aperture for enabling the connection of control circuitry mounted in said control support portion to a power and/or data supply mounted on said shelf edge. In this manner an electronic display device may be easily and simply connected to a power and/or data supply provided on the shelf edge.

In a further aspect the present invention provides a shelving display comprising a shelf, a power and/or data supply mounted on said shelf, one or more shelf label holders of the type described above and one or more labels, at least one of which is an electronic display device.

Preferably, said shelf includes a downwardly depending wall for insertion into said one or more shelf label holders and for engagement with said engagement portions of said one or more shelf label holders and said downwardly depending wall may have said power and/or data supply mounted on the surface of the wall facing said control support portions of said one or more shelf label holders.

Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a schematic side view of a first embodiment of a shelf label holder with a liquid crystal display label mounted on a shelf edge in accordance with the present invention;

Fig. 2 is a schematic side view of a shelf with a power and a data supply with which a shelf label holder in accordance with the present invention may be used;

Fig. 3 is a schematic side view of the shelf label holder of Fig. 1;

Fig. 4 is a schematic side view of a liquid crystal display label for use with the shelf label holder of the present invention;

Fig. 5 is an enlarged schematic side view of the control device for the liquid crystal display label of Fig. 4.

Fig. 6 is a schematic side view of the shelf label holder of Fig. 1 with the liquid crystal display label of Figs. 4 and 5;

Figs. 7a and 7b show end caps for use with the shelf label holder of Fig. 1;

Fig. 8 is a schematic side view of a second embodiment of a shelf label holder in accordance with the present invention on a shelf edge; and

Fig. 9 is a perspective view of a shelf edge bearing a plurality of shelf label holders in accordance with the present invention.

A shelf label holder 1 is shown in Fig. 1 attached to the front edge of a shelf 2 of the type suitable for use in a supermarket. The shelf label holder 1 is shown holding an electronic display device which is in the form of a liquid

crystal display (LCD) label 3 and associated but separate control circuitry 4.

The shelf which is more clearly shown in Fig. 2, to which the shelf label holder 1 is attached, has a substantially horizontal article display member 5 onto which articles to be displayed are placed. At a front edge 6 of the display member 5 a downwardly depending laminar engaging member or wall 7 is provided connected to the front edge 6 of the display member 5 by means of a connecting wall portion 8. The engaging member 7 and the connecting wall portion 8 extend the whole length of the display member 5. The display member 5, engaging member 7 and the connecting wall portion 8 may be unitary or may be separate elements connected together. The connecting wall portion 8 is arranged so as to define an S-shape in cross-section whereby the engaging member 7 is located partially beneath and at an acute angle to the plane of the display member 5. It will of course be appreciated that alternative arrangements of the connecting wall portion 8 may be used for connecting the engaging member 7 to the display member 5. The preferred arrangement shown in Figs. 1 and 2 has the advantage that, since the engaging member 7 is at an acute angle to the plane of the display member 5, when the shelf label holder 1 engages the engaging member 7 it is inclined relative to the vertical in a manner similar to that of conventional shelf edge displays which makes a label in the shelf label holder 1 easier to see and read for people going past the shelf 2. The free end of the engaging member 7 of the shelf 2 is bent back so as to form a wall 9 which lies parallel to the main body of the engaging member 7 and projects upwardly towards the underside of the display member 5. The wall 9 forms with the main body of the engaging member 7 a lower portion of

the engaging member 7 which is of double thickness. Moreover, since the free end of the engaging member 7 is bent back a smooth edge is presented which is unlikely to cause injury if touched.

The engaging member 7 has a front wall surface 7a which faces outwardly from the shelf 2 and a back wall surface 7b which faces the space directly beneath the shelf 2. On the back wall surface 7b an electrically insulated support member 10 is provided. On the support member 10 is located a plurality of exposed electrical conductors 11, four of which are shown in the accompanying drawings. The support member 10 and the electrical conductors 11 extend the whole length of the engaging member 7. The electrical conductors 11 are individually connected to either the power supply or a data supply (not shown) so that each of the electrical conductors 11 may be used to supply power or data to an electronic display device. In the accompanying drawings one of the electrical conductors functions as a live electrical supply, a second of the electrical conductors functions as a ground, and a third and fourth electrical conductor function to supply data. The electrical conductors may be in the form of copper strips or bus bars so that electrical contact to any one of the conductors 11 is possible at any point along the length of the electrical conductors 11.

It will be appreciated that different numbers of electrical conductors may be provided on the shelf 2 to provide different or multiple power and data supplies.

In Fig. 3 the shelf label holder 1 is shown without the LCD label 3 and control circuitry 4. The shelf label holder 1 has a label support portion 12, a control

circuitry support portion 13 and a shelf engagement portion 14 for engagement with the shelf 2. The shelf label holder 1 is sized so as to hold one label and is arranged so that it may be mounted at any point along the shelf 2. The shelf label holder 1 is preferably made of a plastics material although it will be appreciated that any suitable material having similar characteristics of electrical insulation, strength and durability may be used. When made in a plastics material the shelf label holder 1 may be made in an extrusion and then cut to the required length. Alternatively, the shelf label holder 1 may be formed using a plastics injection moulding process which enables each shelf label holder 1 to be made to a dedicated size and shape. The different possible sizes of the shelf label holder depend upon the length of the label to be mounted in the shelf label holder and the size of the control circuitry to be mounted in the shelf label holder when an electronic display device is to be used. The label support portion 12, the control circuitry support portion 13 and the shelf engagement portion 14 may be unitary or individual elements connected together. The shelf label holder 1 may be transparent. Alternatively, if the body of the shelf label holder 1 is not transparent, an area of a front wall 15 of the shelf label holder 1 must be transparent to act as a window through which a label mounted in the shelf label holder 1 may be seen.

The label support portion 12 includes the front wall 15 and a back wall 16 defining a substantially enclosed space 17. The space 17 is open at either side and a further opening 18 is provided at the base of the back wall 16. The space 17 corresponds in size and shape with a conventional electronic display device such as an LCD

label 13. The control circuitry support portion 13 has a back support wall 19, opposing channels 20 provided in upper and lower walls and a detent 21 adjacent the upper channel 20. The channels 20 and detent 21 provide the means for supporting the control circuitry 4 for operation of the LCD label 3. The control circuitry support portion 13 has its front face coterminous with and therefore covered by the engagement portion 14. The front face of the control circuitry support portion 13 does, however, have an aperture whereby control circuitry 4 located within the control circuitry support portion 13 is enabled to achieve electrical contact with the electrical conductors 11 of the engaging member 7.

The shelf engagement portion 14 includes a first locking piece in the form of a projecting lip 22 which is connected through a waisted portion 23 to the detent 21. The waisted portion 23 enables the lip 22 to move relative to the detent 21 and the rest of the shelf label holder 1. The shelf engagement portion 14 also includes a receiving member 24 for receiving and engaging an end of the engaging member 7 of the shelf 2. The receiving member 24 is in the form of a channel with an inwardly directed second locking piece or projecting lip 25 at an upper edge of the channel.

The label support portion 12 need not contain an electronic display device such as an LCD label 3, although the label support portion 12 is arranged to be capable of displaying such an electronic label. Instead, a traditional printed paper or plastics label may be used with the shelf label holder 1 described.

As shown in Fig. 1, when the shelf label holder 1 is

mounted on the shelf 2, the end of the engaging member 7 is located in the channel 24 of the engagement portion 14 with the inwardly directed second lip 25 partially overlying the free end 9. The engaging member 7 is entirely located within the shelf label holder 1 between the label support portion 12 and the control circuitry support portion 13 and lies parallel to the back wall 16 of the label support portion 12. The connecting wall portion 8 of the shelf 2 is located above the label support portion 12 with the second bend of the connecting wall portion 8, adjacent the engaging member 7, being engaged by the first lip 22. The first lip 22 is resiliently connected to the rest of the shelf label holder 1 so that it may be bent back to permit the free end of the engaging member 7 to be inserted into the shelf label holder 1 and is then returned to its original position to abut against the connecting wall portion 8. In this way the shelf label holder 1 is removably mountable on the shelf 2 in a particularly convenient and simple manner at any position along the length of the shelf 2 and once in place the shelf label holder 1 securely maintains its position until it is desired to move the shelf label holder 1 to a new location.

When the shelf label holder 1 is mounted on a shelf 2, the control circuitry support portion 13 is located behind and is obscured by the engaging member 7. The engaging member 7 thus acts to protect the control circuitry support portion 13 and any control circuitry 4 supported therein against damage. Moreover, only the label support portion 12 is visible from the front of the shelf 2 thus presenting a more aesthetically pleasing appearance than the conventional shelf label holders which are capable of displaying electronic labels, since the greatest bulk of

the shelf label holder 1 is behind the engaging member 7.

Also, since it is only the label support portion 12 which is visible from the front of the shelf 2, where traditional printed labels are used instead of an electronic display device such as an LCD label 3 with the shelf label holder 1, the appearance of the display is not degraded, even where a mixture of printed labels and LCD labels are used in a plurality of shelf label holders, since the visible thickness of the label support portions 12 does not alter.

Turning now to Fig. 6, the shelf label holder 1 is shown with an LCD label 3 and associated control circuitry 4 in place. As may be seen the LCD label 3 is located in the space 17 of the label support portion 12. The control circuitry 4 is supported by the control circuitry support portion 13 with the upper and lower edges of a circuit board 26 of the control circuitry 4 located in the opposing channels 20 of the control circuitry support portion 13. The detent 21 abuts against an upper edge region of the circuit board 26. The LCD label 3 and the control circuitry 4 are inserted into the shelf label holder 1 through one of the open sides. The LCD label 3 and the control circuitry 4 are connected together by means of a ribbon connector 27 or other suitable connector which passes through the opening 18 in the label support portion 12 and along a channel which connects the label support portion 12 with the control circuitry support portion 13. The control circuitry 4 will be described in greater detail later with reference to Figs. 4 and 5.

Once the LCD label 3 and the control circuitry 4 are in place within the shelf label holder 1, end caps 28 may be

used to close the open sides of the shelf label holder 1. The end caps 28 are shown in Figs. 7a and 7b. The end cap 28 shown in Fig. 7a has a recessed area shown in the Figure by the dotted line indicating the border of the recessed area and acts as a female connector. The end cap 28 shown in Fig. 7b has a corresponding projecting area also marked by a dotted line in the Figure and acts as a male connector. Each shelf label holder 1 therefore has one female end cap 28 with a recessed area and one male end cap 28 with a projecting area. In this way when a plurality of shelf label holders 1 are positioned on a shelf 2 adjacent one another the male end cap 28 on a first shelf label holder 1 engages and co-operates with a female end cap 28 on a second shelf label holder 1. This results in the plurality of shelf label holders 1 presenting a visually continuous line of displays which is pleasing to the eye, is more likely to encourage consumer acceptance and is less likely to result in individual shelf label holders being accidentally knocked off the shelf 2.

Turning now to Figs. 4 and 5, an LCD label 3 is shown with its associated but separate control circuitry 4. As mentioned above the LCD label 3 is connected to the control circuitry 4 by means of a ribbon connector 27. The ribbon connector 27 is connected to the printed circuit board (PCB) 26 of the control circuitry 4. The control circuitry 4 also includes control components 29, a driver 30 which may be in the form of an integrated circuit and power and data connectors 31.

The power and data connectors 31 may be more clearly seen in Figure 5. The power and data connectors 31 are in the form of spring biased pins. In Fig. 5 the pins 32 are

shown in a position of no spring compression in solid lines and in a position of maximum spring compression in dotted lines. Each of the pins 32, only four of which are shown in the Figures corresponding to the four electrical conductors 11, is soldered at one end to the PCB 26. The other end of each pin 32 is free and is intended for electrical contact with one of the electrical conductors 11. In this way power and data supplied by the electrical conductors 11 may be supplied to the control circuitry 4 and thereby to the LCD label 3. The pins 32 are mounted in an electrically insulated block 33 and are capable of movement relative to the block 33. Associated with each pin 32 within the block 33 is a spring or other biasing means 34. In Fig. 5 the biasing means 34 is shown as a helical spring which surrounds the pin 32 and is compressed when pressure is applied to the free end of the pin 32. In this way when the pin is brought into electrical contact with one of the electrical conductors 11 the biasing means 34 acts to force the pin 32 against the electrical conductor 11 thus ensuring good electrical contact between the pin 32 and the electrical conductor 11. The pins 32 are shown in contact with respective electrical conductors 11 in Figure 1.

In Fig. 8 an alternative shelf label holder 101 is shown with a different design of shelf edge. In this figure the shelf 105 is not unitary with the engaging member 107. Instead, the engaging member 107 is formed as a separate element which is attached to the underside of the shelf 105 at a position 150 away from the edge 106 of the shelf 105. A portion 151 of the underside of the shelf 105 therefore projects beyond the engaging member 107. In this way, when the shelf label holder 101 is mounted on

the shelf edge, an upper edge 152 of the shelf label holder 101 abuts against the portion 151 of the shelf 105. Since the engaging member 107 is positioned at an acute angle to the plane of the shelf 105, the upper edge 152 of the shelf label holder 101 and the portion 151 of the shelf 105 co-operate to prevent movement of the upper edge 152 outwards from the engaging member 107.

The engaging member 107 is attached to the underside of the shelf 105 at position 150 by means of spot welding, riveting or adhesive. In Fig. 8 there is also provided a shelf strengthener 153 which is a U-shaped in cross-section member attached to the underside of the shelf 105 to strengthen the shelf 105, particularly where heavy individual items are intended to be put on the shelf 105. The shelf strengthener 153 is attached at its upper edges to the shelf 105 at positions 150 and 154. The engaging member 107 may be unitary with the shelf strengthener 153 as shown in Fig. 8.

The shelf label holder 101 shown in Fig. 8 has a label support portion 112 similar to the label support portion 12 shown in the earlier figures. However, the control circuitry support portion 113 defines an enclosed space by having, in addition to a back support wall 119 and channels 120 similar to those described in the earlier figures, a front support wall 155. The front support wall 155 includes an aperture (not shown) to enable control circuitry mounted in the control circuitry support portion 113 to achieve contact with the power and data supply 110 provided on the engaging member 107.

The front support wall 155 defines with the back wall 116 of the label support portion 112 an extension of the

channel 124 of the engagement portion 114. The front support wall 155 projects slightly into the channel 124 thus forming an inwardly projecting lip 125 which co-operates with the wall 109 of the engaging member 107 to hold the shelf label holder 101 in position when mounted on the shelf edge. The free end of the engaging member 107 also assists in locating the shelf label holder accurately on the shelf edge. With this alternative arrangement the lip 22 on the shelf label holder of the earlier figures is dispensed with. It will be understood that the features and advantages of the shelf label holder described with reference to the earlier figures apply equally to the shelf label holder 101 shown in Fig. 8.

In Fig. 9 a perspective view of a number of shelf label holders 1, 101 are shown mounted on a shelf edge. Some of the shelf label holders contain liquid crystal display labels 3, others contain printed labels 40. The shelf 5 also has a side wall 41 to protect the control circuitry 4 mounted behind the engaging member 7 and to present a more aesthetically pleasing appearance. Each of the shelf label holders 1, 101 has end caps 28. In one case, two end caps 28 on adjacent shelf label holders 1, 101 are in engagement thus enabling a continuous display to be presented by the two adjacent shelf label holders.

Thus, with the shelf label holders described above, both printed labels and electronic display devices may be easily and conveniently mounted on a shelf edge together. Moreover, since the shelf label holders provide for the control circuitry of any electronic display device to be mounted behind the shelf edge a more aesthetically pleasing display is achieved particularly where a combination of printed and electronic display devices are used.

CLAIMS:

1. A shelf label holder having a label support portion for supporting a label to be displayed in the shelf label holder, an engagement portion adapted for removable engagement with a shelf edge and a control support portion for supporting control means for use in controlling an electronic display label wherein the engagement portion is located between the label support portion and the control support portion whereby when the shelf label holder is mounted on a shelf edge the control support portion is positioned behind and is at least partially obscured by the shelf edge.
2. A shelf label holder as claimed in claim 1, wherein said engagement portion extends to cover a front face of said control support portion.
3. A shelf label holder as claimed in either of claims 1 or 2, wherein said engagement portion includes one or more locking members adapted for engagement with a shelf edge to removably hold said shelf label holder in position on a shelf edge.
4. A shelf label holder as claimed in claim 3, wherein said one or more locking members are in the form of projecting lips.
5. A shelf label holder as claimed in any one of the preceding claims, wherein a channel is provided communicating said label support portion with said control support portion for housing electrical conductors extending from said label support portion to said control support portion.
6. A shelf label holder as claimed in any one of the preceding claims, wherein said control support portion

includes an aperture for enabling the connection of control circuitry mounted in said control support portion to a power and/or data supply mounted on said shelf edge.

7. A shelf label holder as claimed in any one of the preceding claims, wherein said label support portion has a window through which a label mounted within the label support portion may be seen.

8. A shelf label holder as claimed in claim 7, wherein said shelf label holder is transparent.

9. A shelf label holder as claimed in any one of the preceding claims, wherein said shelf label holder is open at at least one side to enable the insertion of a printed label or an electronic display device and associated circuitry into the shelf label holder.

10. A shelf label holder as claimed in claim 9, wherein both sides of said shelf label holder are open and there are further provided removable end caps for engagement in said open sides.

11. A shelf label holder as claimed in claim 10, wherein a male end cap and a female end cap are provided so that adjacent shelf label holders may be connected together by means of co-operating male and female end caps on respective shelf label holders to provide a visually continuous display.

12. A shelf label holder as claimed in any one of the preceding claims further including an electronic display device.

13. A shelf label holder as claimed in claim 12, wherein said electronic display device is a liquid crystal display (LCD) label with separate control circuitry.

14. A shelf label holder as claimed in claim 13, wherein said control circuitry includes a plurality of electrical connectors for connection to a power and/or data supply.

15. A shelf label holder as claimed in claim 14, wherein said electrical connectors are in the form of biased pins.

16. A shelving display comprising a shelf, a power and/or data supply mounted on said shelf, one or more shelf label holders in accordance with any one of claims 1 to 11 and one or more labels, at least one of which is an electronic display device.

17. A shelving display as claimed in claim 16, wherein said shelf includes a downwardly depending wall for insertion into said one or more shelf label holders and for engagement with said engagement portions of said one or more shelf label holders.

18. A shelving display as claimed in claim 17, wherein said downwardly depending wall is a separate element connected to said shelf.

19. A shelving display as claimed in claims 17 or 18, wherein said downwardly depending wall has said power and/or data supply mounted on the surface of the wall facing said control support portions of said one or more shelf label holders.

19. A shelf label holder substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

20. A shelving display substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

Relevant Technical fields

(i) UK Cl (Edition L) A4B (B7B), G5C (CAB, CBG, CBL,
CBM, CEP, CEPL, CER, CJA, CJX)

(ii) Int Cl (Edition 5) G09F

Search Examiner

A H CASLING

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

28 JUNE 1993

Documents considered relevant following a search in respect of claims

1 TO 20

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2083673 A (FLUICON) - see page 1 line 43 et seq	Claims 1, 2,5,7,12, 16,17 at least

Category	Identity of document and relevant passages - 20 -	Relevant to claim

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).